the existence of similarity, and particularly not in a field so difficult to measure as that of values. Smith's regression measurements of the various criteria of shared values indicate complex partial correlations and differential frequencies, not mutually incomprehensible universes of value discourse. Smith's conclusions thus rest on an assessment of degrees of similarity and difference in values. I agree with his judgment, but I do not believe that the suitability of pluralism as a framework for comprehension of colonial societies precludes the utility of examining them as loosely integrated systems of normative solidarity.

If Smith's test of theory is a failure, it is an honorable failure. The theoretical problems he fingers are real and pressing, and, if he has not altogether resolved them, neither has anyone else. Modern social science must find a generally satisfactory formulation of values, and it has not yet done so. *Stratification in Grenada* could well become an important part of the ferment leading to this result, and we may regard the author's craftsmanship and rigor as unearned profit. He has given us a valuable monograph that grapples with important questions.

M. S. EDMONSON
Department of Sociology and Anthropology, Tulane University

A Literature Survey

Ultraviolet Radiation. Lewis R. Koller. Wiley, New York, ed. 2, 1965. viii + 312 pp. Illus. $12.

On the dust cover of Koller's new edition, it is claimed that the book "brings together in a concise and orderly fashion all of the material now scattered through the literature." Indeed it covers a great deal of ground, discussing the natural and artificial sources of ultraviolet radiation and its transmission and reflection by many materials, and ending with a chapter on applications of ultraviolet radiation and one on detectors. The author is happiest when dealing with artificial sources, detectors, and materials, and rather less so in his chapter on solar radiation.

The main fault of this book, which is fortunately intended for reference rather than as a text, is a lack of system in nomenclature, vividly illustrated on pages 208 and 209 where we have "reflectance" in the legend to Fig. 13, "reflectivity" in the diagrams. What is one to think of "a black body of emissivity 0.058" (p. 67)? Or of a "light output [light-output?] equivalent to a brightness of 430 suns" (p. 103)? I submit that no one who has been dealing with radiation for as long as Koller has should make a light-output equivalent to a brightness. He could well have used the notation approved by the International Commission on Illumination, on which the United States is well represented. This leads me to remark that the author makes little reference to researches, and even less to equipment, from outside his own country.

As in the first edition, the index is adequate, though authors whose names appear only in the numbered references at the ends of the chapters are not indexed. Footnotes are used to refer to many papers, so why not for all? In general, the references are not very systematic; for instance, on page 23 we are referred in the text to "J. D. Cobine's *Gaseous Discharges*," a work doubtless well known to Koller, with no additional details. And "*NASA*, CR-17" (p. 88) seems rather cryptic. Misprints are not more common than is usual in technical books nowadays, but on page 148 it is stated that the scale of ordinates of Fig. 23 is logarithmic, although in the figure it is linear.

In spite of these strictures, I think that the book will be useful in the reference libraries of manufacturers and research institutions.

W. E. KNOWLES MIDDLETON
39 Rossetti Garden Mansions, Flood Street, London, S.W.3, England

Descriptive Parasitology

Microscopic Diagnosis of the Parasites of Man. Robert B. Burrows. Yale University Press, New Haven, Conn., 1965. xii + 328 pp. Illus. $15.

Believing that, in many laboratories, the quality of diagnostic parasitology is inadequate and placed in the hands of insufficiently trained persons, the author, from a wide experience with the difficulties met by the untrained person, designed this book chiefly to help him. To accomplish this the book emphasizes the description of the stages of the parasites seen by the technician and omits most aspects of the life cycle, pathology, and treatment. Supporting the descriptions is a large array of illustrative material, almost exclusively at standard magnifications. For the helminth eggs these are photomicrographs at 400×, as commonly viewed under the high, dry microscope objective. For the protozoa a special drawing medium was found to represent as closely as possible the specimens as seen under the oil immersion objective (1500×). In addition, several specimens of each species are figured so that both the typical variation and the range of variation which the microscopist will encounter are adequately represented. The drawings are further distinguished by being originals done by Burrows, and they constitute an addition to the repertory of illustrative parasitological material.

Another good feature is the meticulous detail with which instruction in techniques is presented, with much of the author's personal experience given as suggestions for attaining success with them. The whole range of procedure from tissue sectioning and staining of pathological material to blood and fecal smears is given. Each chapter ends with a list of important references to the diagnostic literature. The parasites of dogs and cats that are found in North America are considered in an appendix.

In general, then, the book meets the objectives of the author. However, the illustrative material, so well conceived as a need, falls short of the goals on several counts. In many cases the photographs of helminth material, as printed, are of such low contrast or poor focus that it is difficult to identify the diagnostic detail mentioned in the text (for example, nematode larvae, eggs of cestodes, microfilariae). The literature contains better examples.

The drawings of the protozoa also are shown in low contrast, especially the intestinal flagellates, so that again the text is difficult to follow in the specimens given. Furthermore, there are no identifying labels for cytological details. Thus, the untrained person will have to turn to sources other than this book to learn what axostyle, blepharoplast, kinetoplast, chromatoid, and karyosome are. In the case of the blood protozoa, so many good examples of colored plates are available, and even some very recent additions, that drawings in shades of grey seem almost inexcusable and weaken the usefulness of these sections of the book.

There are only a few minor errors (for example, contractile vacuole empties through cytopyge) and remarkably

few typographical errors. Even though it does not quite attain the author's goals, the book will make a useful addition to the diagnostic laboratory.

LESLIE A. STAUBER
Department of Zoology,
Rutgers University

Origins of Quantum Physics

The Classical Atom. Francis L. Friedman and Leo Sartori. Addison-Wesley, Reading, Mass., 1965. x + 118 pp. Illus. Paper, $2.50.

The book by Friedman and Sartori, *The Classical Atom*, is clearly and concisely written, and is a pleasure to read. The monograph is the first one of a series intended for students as an introduction to quantum mechanics; problems are given at the end of each chapter. The first volume, which discusses the development of physics before the establishment of the Rutherford atom, is mainly an excellent demonstration that classical mechanics cannot explain many of the observed phenomena. The early experiments, which eventually led to quantum mechanics, are described in some detail. The mathematical apparatus needed to understand the physics is lucidly and rigorously derived.

The first chapter deals essentially with the discussion of the existence of atoms, and measurements of such fundamental constants as Avogadro's number and the charge of ions.

The second chapter might be entitled "Kinetic theory." The virial theorem is used to derive the equation of state. There is a good discussion of random walk and a derivation of the Maxwell-Boltzmann equation, as well as the classical equipartition law of the energy. The discrepancy between measured and calculated specific heat of various substances is the first indication that classical theory fails when applied to atoms.

The third and longest chapter deals with atomic structure. It begins with Thomson's discovery of the electron. Canal rays and the early beginnings of mass spectroscopy are discussed. The authors give an excellent description of the confused thoughts about atomic structure which lasted well into the 20th century. This is a period of physics which many of us have forgotten, and one which most have never heard of. Some of the false starts made in attempting to explain the behavior of atoms are described in some detail. Friedman and Sartori's description of the theory of the Thomson atom, which I knew only by name, I found particularly interesting. The scattering experiments with α and β particles led to the more successful Rutherford model of the atom. The book ends with a discussion of the early attempts to explain the structure of atomic nuclei. However, because the Rutherford atom would not be stable if the electron obeyed the laws of classical mechanics and electromagnetism, the book ends with a huge question mark.

I regret that the decision has been made to publish Friedman and Sartori's work in separate short monographs. It somewhat resembles a detective story in which the solution is promised to come in a later book. But the masterly execution of this first monograph leads one to look forward to the publication of the other volumes in the series.

MARIA GOEPPERT MAYER
Department of Physics,
Revelle College,
University of California, San Diego

Optical Quantum Electronics

Quantum Electronics and Coherent Light. Course 31, International School of Physics "Enrico Fermi." C. H. Townes and P. A. Miles, Eds. Academic Press, New York, 1965. xii + 371 pp. Illus. $16.

Although the subject of quantum electronics may be said to have come into existence in 1954 with the development of the molecular beam microwave maser, its present rate of growth did not begin until the appearance of the optical maser, or laser, in 1960. Since then, the "optical branch" of quantum electronics has grown phenomenally and was the subject of a course in August 1963 at the International School of Physics "Enrico Fermi," this course being the basis of the present volume.

Optical quantum electronics is connected with several branches of physics. It is, therefore, not easy to produce a collection of 21 papers that covers the subject sufficiently broadly to represent a course given at an international school and, yet, does not appear to be a series of unrelated articles, each touching only briefly on its subject. The editors have solved this problem reasonably well with papers on optically pumped and injection lasers, electromagnetic resonators, theory of laser oscillation, maser noise, the spectra of ions in crystals, nonlinear optical effects, Raman masers, and coherent Raman and Brillouin effects. Articles on high-resolution spectroscopic techniques and velocity of light measurements seem to be somewhat out of place. Regrettable omissions are articles on spectra related to gaseous lasers. Because the volume constitutes the proceedings of a course, much of the material is tutorial, but there is a considerable amount that can be regarded as a presentation or summary of the authors' latest research results. Inclusion of matter of the latter type in a volume published almost two years after the course was given inflicts a hardship on the reader who is not familiar with recent developments in the field; he cannot tell which material has been superseded, perhaps by the author himself. Yet this is just the reader for whom the tutorial material is intended.

Much of the tutorial material is well presented, and the book will be of value to the nonspecialist. Since the topics covered have a wide range, everyone is a nonspecialist in some of the topics, and even a worker in one field of quantum electronics will find that the material in the other fields is useful. The book is also a convenient source of references. Poor typography and lack of editorial attention to the English of some of the foreign contributors mar the volume.

I. R. SENITZKY
Institute for Exploratory Research,
U.S. Army Electronic Command,
Fort Monmouth, New Jersey

New Books

Biological and Medical Sciences

Global Impacts of Applied Microbiology. Proceedings of a coordination conference (Stockholm), July–August 1963. Mortimer P. Starr, Ed. Almqvist and Wiksell, Stockholm; Wiley, New York, 1965. 586 pp. Illus. $15. Forty-three papers on the following topics: Some philosophies of applied microbiology (5 papers); Interactions of general and applied microbiology (5 papers); Food and agricultural microbiology (12 papers); and Industrial and chemical microbiology (21 papers).

Grant's Method of Anatomy: By Re-

(Continued on page 530)